APPENDIX A

COPY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re New Continuation U.S. Patent Application of:			
Applicants:	**M. Tischler, et al.**	**Docket No.:**	**2771-161 CON**
Continuation of U.S. Patent Application:	**08/955,168**	**Parent Application Examiner:**	**M. Miggins**
Application No.:	**Not Yet Assigned**	**Parent Application Group Art Unit:**	**1772**
Date Filed:	**August 14, 2001**		
Title:	**BULK SINGLE CRYSTAL GALLIUM NITRIDE AND METHOD OF MAKING SAME**		

23448
PATENT TRADEMARK OFFICE

EXPRESS MAIL CERTIFICATE

I hereby certify that I am mailing the attached documents to the Commissioner for Patents on the date specified, in an envelope addressed to the Commissioner for Patents, Box PATENT APPLICATION, Washington, D.C., 20231 and Express Mailed under the provisions of 37 CFR 1.10.

Lee Ann Brown
Lee Ann Brown

August 21, 2001
Date

EL666413658US
Express Mail Label Number

SUBMISSION OF NEW CONTINUATION APPLICATION BASED ON U.S. PATENT APPLICATION NO. 08/955,168, AND PRELIMINARY AMENDMENT THEREOF

Commissioner for Patents
Box PATENT APPLICATION
Washington, D.C. 20231

Sir:

In connection with the above-identified continuation application enclosed and submitted herewith, a petition for three (3) months extension of time was filed on August 14, 2001 in the parent U.S. Patent Application No. 08/955,168, extending the deadline for response to the outstanding Office

Action therein from May 28, 2001 to August 28, 2001. Please amend the new continuation application as follows:

In the Claims

Cancel claims 1-38.

Add new claims 39-60, as follows:

39. A single crystal article, consisting essentially of a single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, said article having a three dimensional (x,y,z) character wherein each of the dimensions x, y and z is at least 100 micrometers, and said single crystal material no defects from thermal coefficient of expansion differences.

40. A single crystal GaN article, consisting essentially of a single crystal GaN material, optionally n-, p- or semi-insulatively doped, and having a three dimensional (x,y,z) character wherein each of the dimensions x, and y is at least 100 micrometers and z is at least 1 micrometer, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

41. A single crystal GaN article of cylindrical or disc-shaped form wherein the diameter is at least 200 micrometers and the thickness is at least 1 micrometer, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

42. A single crystal GaN article of cylindrical or disc-shaped form, having a thickness of at least 100 micrometers and a diameter of at least 2.5 centimeters, wherein the single crystal GaN material has no defects from thermal coefficient of expansion differences.

43. A single crystal article according to claim 39, wherein the bulk single crystal comprises a surface having a microelectronic device structure or substructure formed thereon.

44. A single crystal article according to claim 39, comprising a doped surface region.

45. A single crystal article according to claim 44, wherein the doped surface region silicon-doped.

46. A single crystal article according to claim 45, wherein the silicon-doped surface region has an ohmic contact structure fabricated thereon.

47. A single crystal article according to claim 39, where the single crystal material comprises a compositionally graded ternary metal nitride selected from the group consisting of AlGaN, InGaN, and AlInN.

48. A single crystal article according to claim 39, wherein the single crystal material is doped with a dopant selected from the group consisting of Si, Ge, S, Se, Mg, Zn, Be, V, and Fe.

49. A single crystal article according to claim 39, wherein the single crystal material is n-doped.

50. A single crystal article according to claim 39, wherein the single crystal material is p-doped.

51. A single crystal article according to claim 39, wherein the single crystal material is semi-insulatively-doped.

52. A single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, produced by a process of growing the bulk single crystal material heteroepitaxially on a sacrificial base and removing the sacrificial base while the bulk single crystal material is close to the growth temperature of the material.

53. A single crystal material according to claim 52, comprising GaN.

54. A single crystal material according to claim 52, comprising a AlGaN.

55. A single crystal material according to claim 52, comprising a InGaN.

56. A single crystal material according to claim 52, having a three dimensional character wherein each of said dimensions is at least 100 micrometers.

57. A single crystal material selected from the group consisting of GaN, InN, AlN, AlGaN, InGaN, AlInN, AlInGaN, SiC, and SiC alloys of GaN, InN, AlN, AlGaN, InGaN, AlInN, and AlInGaN, optionally n-, p- or semi-insulatively doped, produced by a process of growing the bulk single crystal material heteroepitaxially on a sacrificial base and removing the sacrificial base while the bulk single crystal material is at elevated temperature by fracturing the substrate from the bulk single crystal material via pressure deriving from an implanted species.

58. A single crystal material according to claim 57, wherein said implanted species comprises hydrogen.

59. A single crystal material according to claim 57, having a three dimensional character wherein each of said dimensions is at least 100 micrometers.

60. A single crystal GaN article having a diameter greater than 10 inches, wherein the bulk single crystal GaN material has no defects from thermal coefficient of expansion differences.

REMARKS

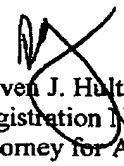
The claims added and now pending in this continuation application are claims 39-60 set out above. These claims correspond in substance to the claims pending in parent application No. 08/955,168.

This continuation is being filed to enable the applicants to comprehensively address the Nakamura et al. reference cited in the February 28, 2001 Office Action in the parent application and to present a showing of patentable advance of applicants' claimed invention over the art.

A petition for three months extension of time was filed on August 14, 2001 in parent application No. 08/955,168.

The priority of parent application No. 08/955,168 is hereby claimed.

Respectfully submitted,



Steven J. Hultquist
Registration No. 28,021
Attorney for Applicants

INTELLECTUAL PROPERTY/
TECHNOLOGY LAW
P.O. Box 14329
Research Triangle Park, NC 27709
Phone: (919) 419-9350
Fax: (919) 419-9354
Attorney File: 2771-161 CON